Official

LISTING OF CLAIMS

1 (currently amended). In apparatus for detecting the presence of an airborne chemical or biological analyte, the improvement comprising:

a ~~substantially~~ gas- and liquid-~~impermeable~~ containing ~~container~~ chamber;

means for introducing ~~a substantially~~ an analyte-free collection liquid into said ~~container~~ chamber;

means for rapidly sampling a volume of ambient air and transferring said analyte therefrom into said collection liquid, said sampling means comprising an air intake means and and an air venting means; and

means for removing from said ~~container~~ chamber an analyte-enriched collection liquid; wherein said volume of air passes through a ~~substantially~~ preferably horizontal air inlet and upwardly through a ~~substantially~~ preferably vertical electrically conductive collector electrode tube with means for applying an electric field between said tube and a co-axial spiked wire- or rod-shaped discharge electrode, wherein said electric field is high enough to effectuate a corona discharge so as to generate ionized particles that could be driven towards said collector electrode by an electric field.

2 (previously presented). The apparatus of claim 1, comprising means for introducing a fine mist of droplets into the air stream passing through said collector tube so as to cause wetting of the inner surface of said tube by a liquid film.

3 (previously presented). The apparatus of claim 2, wherein said mist is generated by an ultrasonic humidifier.

4 (previously presented). The apparatus of claim 2, comprising means for generating and transmitting ultrasonic waves across the interface between said tube and said liquid film so as to help transfer particles or biological cells adhering to the tube surface from said surface into said film.

5 (currently amended). In a method for detecting the presence of an airborne chemical or biological analyte, the improvement comprising the steps of:

providing a ~~substantially~~ gas- and liquid-containing ~~impermeable container~~ means;

introducing ~~a substantially~~ an analyte-free collection liquid into said container means;

rapidly sampling a volume of ambient air and transferring said analyte therefrom into said collection liquid, said sampling means comprising an air intake means and an air venting means; and

removing from said ~~container~~ containing means an analyte-enriched collection liquid;

passing said volume of air through a ~~substantially~~ preferably horizontal air inlet and upwardly through a ~~substantially~~ preferably vertical collector electrode tube; and

applying an electric field between said tube and a co-axial spiked wire- or rod-shaped discharge electrode, wherein said electric field is high enough to effectuate a corona discharge so as to generate ionized particles that could be driven towards said collector electrode by an electric field.

6 (previously presented). The method of claim 5, comprising the step of introducing a fine mist of droplets into the air stream passing through said collector tube so as to cause wetting of the inner surface of said tube by a liquid film.

7 (currently amended). The improvement of claim 6, wherein said mist is generated ultrasonically.

8 (previously presented). The improvement of claim 6, comprising the step of generating and transmitting ultrasonic waves across the interface between said tube and said liquid film so as to help transfer particles or biological cells adhering to the tube surface from said surface into said film.

9 (new). The apparatus of claim 1, wherein said collector electrode is a metallic tube.

10 (new). The apparatus of claim 1, wherein said collector electrode comprises an electrically conductive coating or foil applied to the inner surface of a non-conductive tube.

11 (new). The apparatus of claim 9, wherein said collector electrode has a roughened preferably sandblasted inner surface.

12 (new). A method of capturing aerosolized sub-micron-size particles from a volume of air which comprises passing said air through an electrostatic precipitation-based aerosol collector.

13 (new). The method of claim 12, wherein said sub-micron-size particles are virus particles.

14 (new). The method of claim 12, wherein said sub-micron-size particles are toxin particles.